Measures of Residential Segregation

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Theory

2000 Residential Segregation Indices

Theory

Overview

According to Massey and Denton (1988), there are five major dimensions of segregation

- *Evenness*: spatial distribution of different groups among *units* in a metropolitan area
- *Exposure*: possibility of interaction between minority and majority group members
- Concentration: relative amount of physical space occupied by a minority group in the metropolitan area
- Centralization: how a group spatially located near the center of an urban area
- Clustering: which areal *units* inhabited by minority members adjoin one another, or cluster, in space

Total of 19 indexes. By default, the majority refers to non-Hispanic Whites.

Focus

- Dissimilarity index for Evenness: the percentage of population would have change residence to have the same percentage overall
  - 0.0 (complete integration) to 1.0 (complete segregation)
- Interaction index for Exposure: probability that a minority person shares a unit area with a majority person
  - 0.0 (complete segregation) to 1.0 (complete integration)
- Isolation index for Exposure: probability that a minority person shares a unit area with a minority person
  - 0.0 (complete integration) to 1.0 (Complete segregation)

Remarks

- Define the geographic units: in our calculation, we aggregated tract level statistics to reflect county level information
- When there are only two groups, interaction index and isolation index sum up to 1
- "Indexes of evenness and exposure are correlated but measure different things: exposure measures depend on the relative sizes of the two groups being compared, while evenness measures do not."
- Isolation index only require one group, a minority group

2000 Residential Segregation Indices

Overview

- 2000 Census data was last retrieved on 2020/09/04 via R package *UScensus2000tract* (Almquist 2012)
- Dissimilarity, interaction, isolation indices were calculated for each county, by aggregating census tract statistics
- Please refer to the end of *Appendix B* of Iceland and Weinberg (2002) for the calculation equations.

Data File Location

The county level indices file *(final product)* is located at
`S:\Regards\analysis\BoyiGuo\Residential Segregation\Data\county_level_RS_indices.csv`

The supplementary track level file *(raw data)* is located at
`S:\Regards\analysis\BoyiGuo\Residential Segregation\Data\2000_track_data.csv`

Appendix B of Iceland and Weinberg (2002) is located at
`S:\Regards\analysis\BoyiGuo\Residential Segregation\Doc\ResidentialSegregationScore_Intro.pdf`

Data Dictionary

- *state*: FIPS state code in character format, 2-character long
- *county*: FIPS county code in character format, 3-character long
- *fips*: FIPS state+county code in character format, 5-character long
- *dissimilarity_wb*: dissimilarity index (blacks relative to whites) for corresponding county in double format
- *interaction_wb*: interaction index (blacks relative to whites) for corresponding county in double format
- *isolation_b*: isolation index (blacks) for corresponding county in double format

Remarks

- Due to technical difficulties, counties in Alaska and Hawaii were not included.
- Tracks whose total population is 0, are excluded from the calculation
- Please be cautious when reading in the data file: ***state***, ***county***, ***fips*** **could be read in as numeric values instead of characters by mistake, which would remove the leading zeros and cause merging problems**

Reference

Reference

Almquist, Zack W. 2012. *UScensus2000tract: US Census 2000 Tract Level Shapefiles and Additional Demographic Data*. https://CRAN.R-project.org/package=UScensus2000tract.

Iceland, John, and Daniel H Weinberg. 2002. *Racial and Ethnic Residential Segregation in the United States 1980-2000*. Bureau of Census.

Massey, Douglas S, and Nancy A Denton. 1988. "The Dimensions of Residential Segregation." *Social Forces* 67 (2): 281–315.